Kinetics of the oxidation S/076/61/035/002/008/015
B124/B201

specific volume of the oxidized substance larger than unity, the oxidation is known to obey a parabolic relation. For chromium carbides, this relation is $v_{Cr_3C_2} = 1.62$; $v_{Cr_7C_3} = 1.77$ and $v_{Cr_{23}C_6} = 1.84$. When interpreting the data obtained in the oxidation of Cr_3C_2 at 800 - 1000° C as well as from the diagram of the dependence of the oxidation rate on time in logarithmic coordinates, equations $y^{1.9}_{800^o} = 1.091\tau$ (1); $y^{2.56}_{900^o} = 36.44\tau$ (2) and $y^{2.1}_{1000^o} = 50.23\tau$ (3) are obtained for oxidation. The oxidation of Cr_7Cr_3 carbide obeys a more complicated law which is expressed by equations: $y_{800^o} = 97 \log\tau + 4$ (4); $y_{900^o} = 196 \log\tau + 156$ (5) and $y_{1000^o} = 100 \log\tau + 672$ (6). The oxidation isotherm of $Cr_{23}C_6$ at 800° C is expressed by the parabolic equation $y^{1.84}_{800^o} = 28.4\tau$ (7) and that at 900 and 1000° C by the logarithmic equations $y_{900^o} = 100 \log\tau + 98$ (8) and $y_{1000^o} = 98 \log\tau + 165$ (9).

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S/076/61/035/002/008/015
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Kinetics of the oxidation ...

It follows from the results obtained that the character of oxidation differs for different carbides and changes with temperature. For the dependence of the rate constant of the oxidation of powder carbides on temperature the following equations hold: $\log k_{Cr_3C_2} = 2.98 - 15550/T$ (10), $\log k_{Cr_7C_3} = 4.30 + 17476/T$ (11) and $\log_{Cr_{23}C_6} = 4.75 - 7903/T$ (12). The compact specimens were oxidized under continuous weight determination for four hours at 700 and 1000° C; the results are given in Table 3. The following logarithmic relations hold for the oxidation of the compact specimens of Cr_7C_3 carbide: $y_{800^o} = 1.5 \log\tau - 1.4$ (13), $y_{900^o} = 3.5 \log\tau - 3.3$ and $y_{1000^o} = 14 \log\tau - 17.7$ (15).
There are 3 tables and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc; 1 reference to English language publication reads as follows: N. Pilling, R. Bedworth, J. Inst. Metals, 29, 529, 1923.

ASSOCIATION: Akademiya nauk USSR, Institut metallokeramiki i spetssplavov (Academy of Sciences UkrSSR, Institute of Powder Metallurgy and Special Alloys)

Card 3/5

S/076/61/035/002/008/015
B124/B201

Kinetics of the oxidation ...

SUBMITTED: June 2, 1959

	(1) Сгоревший углерод, %																	
	(2) 10 мин.			(2) 20 мин.			(2) 30 мин.			(2) 40 мин.			(2) 50 мин.			(2) 60 мин.		
	Cr_3C_2	Cr_7C_3	$Cr_{23}C_6$	Cr_3C_2	Cr_7C_3	$Cr_{23}C_6$	Cr_3C_2	Cr_7C_3	$Cr_{23}C_6$	Cr_3C_2	Cr_7C_3	$Cr_{23}C_6$	Cr_3C_2	Cr_7C_3	$Cr_{23}C_6$	Cr_3C_2	Cr_7C_3	$Cr_{23}C_6$
400	0,1	0,23	0	0,24	0,67	0	0,32	0,87	0	0,39	0,67	0	0,39	0,67	0	0,39	0,67	0
500	0,89	1,55	0,5	1,04	1,66	0,5	1,04	1,68	0,5	1,04	1,66	0,5	1,04	1,66	0,5	1,04	1,66	0,5
600	0,97	1,99	0,8	1,34	2,66	0,8	1,49	2,88	0,8	1,64	2,88	0,8	1,64	2,88	0,8	1,04	2,88	0,8
700	2,68	3,54	1,71	4,38	4,76	3,08	4,98	5,42	3,77	5,20	5,86	4,11	5,42	6,19	4,62	5,64	6,75	4,96
800	2,53	10,06	7,7	5,12	13,60	10,77	6,76	15,03	12,48	7,87	15,03	14,88	8,62	16,80	16,59	9,58	17,46	18,64
900	9,95	22,66	20,00	14,10	41,55	22,80	15,20	44,87	24,11	16,72	45,86	25,48	18,19	48,00	26,84	19,31	51,83	28,2[illegible]
1000	14,26	72,05	28,55	25,91	81,44	32,12	32,30	83,54	33,85	37,87	84,20	35,56	40,84	84,71	36,59	43,58	84,87	38,2[illegible]

Legend to Table 2: Dependence of the amount of burned carbon on temperature. Initial carbon content in carbides is taken as 100 %.
1) burned carbon, % 2) min.

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1 Увеличение веса, г/см²

2 Температура, °C 880	Cr_3C_2				Cr_7C_3								$Cr_{23}C_6$			
3 →	30 мин.	60 мин.	90 мин.	120 мин.	30 мин.	60 мин.	90 мин.	120 мин.	150 мин.	180 мин.	210 мин.	240 мин.	30 мин.	60 мин.	90 мин.	120 мин.
800	0	0	0	0	0,0059	0,0087	0,0105	0,0121	0,0128	0,0128	0,0128	0,0128	0	0	0	0
900	0	0	0	0	0,0165	0,0287	0,0327	0,0354	0,0391	0,0421	0,0443	0,047	0	0	0	0
1000	0	0	0	0	0,0290	0,0699	0,1030	0,1169	0,1302	0,1425	0,1507	—	0	0	0	0
1100	0	0	0	0	—	—	—	—	—	—	—		0	0	0	0

Legend to Table 3: Weight increase of carbide specimens in oxidation (at continuous weighing) g/cm²
1) weight increase, g/cm² 2) temperature

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37167

S/078/62/007/005/005/014
B101/B110

15.2240
21.2500

AUTHORS: Samsonov, G. V., Kosolapova, T. Ya., Makarenko, G. N.

TITLE: Synthesis and physicochemical properties of yttrium carbides

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 5, 1962, 975 - 979

TEXT: The yttrium carbides YC, Y_2C_3 and YC_2 were synthesized by heating Y_2O_3 with the corresponding stoichiometric amounts of carbon black in vacuo. YC is formed at 1800-1900°C; above 1700°C, the oxycarbide Y_2C_2O is first formed, which is converted into YC by liberation of CO on a further temperature increase (1900°C). YC melts above 1900°C under decomposition. Oxycarbides are also formed in the preparation of Y_2C_3 (1700-1800°C), but not in that of YC_2 (1900°C). Owing to the high volatility of YC and Y_2C_3, the pressure after the reaction remains higher than the initial pressure. YC_2, however, has low volatility. Samples were pressed from the carbides to test their physicochemical properties (YC at 1800°C, 80 kg/cm^2; Y_2C_3 at

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S/078/62/007/005/005/014
B101/B110

Synthesis and physicochemical ...

1650°C, 100 kg/cm^2; YC_2 at 2000°C, 100 kg/cm^2). The authors determined: (1) Microhardness (kg/mm^2); (2) melting point, °C; (3) thermal expansion coefficient, deg^{-1}; (4) resistivity, μohm·cm; (5) thermo-emf, paired with electrolytic copper, μv/deg; (6) radiation coefficient (λ = 0.655 mμ) at 1100°C; (7) ditto at 1800°C. The values in the given order are for YC: 120 ± 33; 1950 ± 20; $1.36\cdot10^{-6}$; $4.54\cdot10^4$; -34.6; 0.81; 0.81; for Y_2C_3: 900 ± 160; 1800 ± 50; -; $3.50\cdot10^2$; -6.4; 0.78; 0.91; for YC_2: 700 ± 106; 2300 ± 50; -; 88.7; -0.8; 0.87; 0.73. The radiation coefficient changes linearly in the given temperature range. The carbides are not stable at room temperature. Oxidation occurs, with YC and Y_2C_3 by formation of oxycarbides (increase in weight). YC_2 oxidizes more slowly and with decrease in weight. Yttrium carbides decompose easily in water and dilute alkalis or acids. YC_2 is the most stable. There are 5 figures and 3 tables. The most important English-language references are: F. Spedding, K. Schneider, A. Daane, J. Amer. Chem. Soc., 80, 4499 (1958); R. Vickery,

Card 2/3

38612

S/020/62/144/005/009/017
B106/B138

21.2500
15.2240

AUTHORS: Samsonov, G. V., Makarenko, G. N., and Kosolapova, T. Ya.

TITLE: Scandium carbide and composite carbides of scandium and titanium

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 5, 1962, 1062-1065

TEXT: Scandium carbide phases were produced by reducing scandium oxide with carbon at high temperatures. In contrast to the published methods (R. Vickery, R. Sedlaček, A Ruben, J. Chem. Soc., 159, 503 (1959); H. Auer-Welsbach, H. Nowotny, Monatshefte f. Chemie, 92, 198 (1961)) the layers were heated in vacuo with the gaseous products being pumped off continuously. Carbide formation sets in at 1300-1400°C. In the reduction products, the bound carbon content, increases as the temperature rises without, however, reaching the calculated ScC value until 1900°C. At 1900-2000°C, the reaction mass dissolves completely, and Sc + $C_{total} \approx 100\%$. The bound C content is somewhat higher than that of pure ScC. Not even a change in conditions (temperature, heating time) yielded <ScC of the theoretical composition. Under certain conditions, ScC was formed via

Card 1/~~Ø~~ 3

metallic scandium. The carbide phase obtained has a cubic face-centered NaCl-type lattice with a = 4.53. This cubic scandium carbide phase has a tendency to absorb oxygen with formation of oxycarbides, to dissolve carbon, and to undergo similar effects due to the extraordinarily high unsaturation of the d-shell in the scandium atom. This is confirmed by the high microhardness of the solid solutions of scandium carbide and isomorphous titanium carbide (Table 1) obtained by the reduction of Sc_2O_3 + TiO_2 mixtures with carbon in vacuo. The optimum composition of the solid solutions of these two carbides corresponds to a particular electron density distribution in the lattice of the solid solutions and to a particular degree of overlapping of the 3d-level of titanium and scandium. The decrease in the specific conductivity of ScC-TiC solid solutions with increasing TiC content also suggests overlapping of the d-level during the formation of solid solutions. The thermal expansion coefficient of ScC($11.4 \cdot 10^{-6}$) decreases considerably when 20 mole% TiC is dissolved. However, if the TiC content is further increased, the thermal expansion coefficient remains practically constant and very close to that of TiC. The results obtained openup new possibilities for using scandium carbide to improve the hardness of the carbides of other transition metals,

Scandium carbide and composite ...

S/020/62/144/005/009/017
B106/B138

especially titanium. There are 4 figures and 1 table. The two English-language references are: (see body of the abstract); W. Hume-Rothery, Phil. Mag., 44, 1154 (1953).

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov Akademii nauk USSR (Institute of Powder Metallurgy and Special Alloys of the Academy of Sciences UkrSSR)

PRESENTED: January 30, 1962, by A. P. Vinogradov, Academician

SUBMITTED: January 30, 1962

Table 1: Properties of ScC - TiC alloys.
Legend: (1) Composition, mole%; (2) pycnometric density, g/cm^3; (3) microhardness, kgf/mm^2; (4) TiC-base phase; (5) ScC-base phase; (6) specific resistivity, μ ohm·cm; (7) thermal expansion coefficient $\alpha \cdot 10^{-6}$ degree^{-1}.

Card 3/3

S/081/62/000/019/014/053
B144/B180

AUTHORS: Kosolapova, T. Ya., Samsonov, G. V.

TITLE: Chemical properties and methods of analyzing chromium carbides

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1962, 120, abstract 19D109 (Byul. In-t metallokeram. i spets. splavov AN USSR, no. 6, 1961, 38 - 44)

TEXT: The investigation concerned the resistance of Cr_3C_2, Cr_7C_3, and $Cr_{23}C_6$ to oxidation and the solubility of powdered and compact samples of these carbides in various acid and alkaline media (H_2SO_4, HCl, H_3PO_4, CH_3COOH, HCOOH, $H_2C_2O_4$, citric and tartaric acids, NaOH, NaOH + bromine water, alkaline $K_2Fe(CN)_6$ solution) at room temperature and on heating. The resistance to the effect of these reagents decreases in the order $Cr_3C_2 > Cr_7C_3 > Cr_{23}C_6$. Due to formation of a chromium oxide film, addition of oxidants to the acids inhibits the dissolution of the carbides (under

Card 1/2

these conditions $Cr_{23}C_6$ remains virtually undissolved). The order of increasing resistance to the effect of oxidant-containing acids (H_2O_2, CrO_3), is Cr_3C_2 - Cr_7C_3 - $Cr_{23}C_6$. Compact samples are more resistant than powdered samples. On heating the oxidation of the carbide itself begins at $>700^{\circ}C$. With Cr_3C_2 powders oxidation at 800 - 1000°C follows a parabolic law, with Cr_7C_3 a logarithmic law, and with $Cr_{23}C_6$ parabolic (800°C) and logarithmic (900 - 1000°C) laws. For all carbides equations are given, which show the dependence of the degree of oxidation on heating time at 800, 900, and 1000°C. Compact Cr_3C_2 and $Cr_{23}C_6$ samples are hardly oxidized at all at $\leqslant 1000^{\circ}C$. On the basis of the results a method is developed for the determination of free C in carbides with an error of 5 - 8%. It consists in burning out the C at 600°C for 30 - 40 min. [Abstracter's note: Complete translation.]

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S/081/62/000/019/015/053
B144/B180

AUTHORS: Kosolapova, T. Ya., Kugay, L. N., Modylevskaya, K. D., Radzikovskaya, S. V., Seraya, O. G.

TITLE: Chemical properties and methods of analysis of some silicides

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1962, 120-121, abstract 19D110 (Byul. In-t metallokeram. i spets. splavov AN USSR, no. 6, 1961, 69 - 74)

TEXT: The behavior of a number of disilicides (DS) was studied in acid and alkaline media. $TiSi_2$, VSi_2, $TaSi_2$, $CrSi_2$, $MoSi_2$, $TiSi_2(ZrSi_2)$, $TaSi_2(NbSi_2)$, WSi_2 and some other DS were found to dissolve rapidly and completely in mixtures of $HF + HNO_3$ and $H_2SO_4 + H_3PO_4$, but the best method of dissolving most DS is by fusion with NaOH in a Ni crucible followed by leaching with 10% H_2SO_4 or HCl. In determining Si in Nb, Ta, and W disilicides, after evaporating the sulfate solutions till evolution of a white fume, $H_2C_2O_4$ is

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introduced, or citric acid in the case of $ZrSi_2$. The content of free Si in DS is determined by dissolving free Si in 1% NaOH solution by heating in a Pt crucible (45 - 60 min) and by subsequent photometric determination of SiO_2 as a yellow silicomolybdic heteropolyacid. The method is not suitable for determining free Si in Nb, W, Co, and Ni disilicides. The metal in the DS is determined by the usual methods, either in the filtrate after SiO_2 separation or in the solution after eliminating Si as SiF_4 by treating the sample with a HF + HNO_3 mixture in a Pt crucible. Co in $CoSi_2$ can be determined by a rapid method. The sample is dissolved in a HF + HNO_3 mixture in a weighed Pt crucible, H_2SO_4 is added, SiF_4 is distilled, the mixture is kept in a muffle furnace at 450 - 475°C until H_2SO_4 is completely removed, and the crucible with the residual $CoSO_4$ is weighed. [Abstracter's note: Complete translation.]

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825120020-1"

9

PHASE I BOOK EXPLOITATION SOV/6030

Samsonov, G. V., Corresponding Member, Academy of Sciences UkrSSR; A. T. Pilipenko, Doctor of Chemical Sciences, Professor; T. N. Nazarchuk, Candidate of Chemical Sciences; O. I. Popova, Candidate of Chemical Sciences; and T. Ya. Kosolapova, V. A. Obolonchik, G. Kh. Kotlyar, L. N. Kuchay, V. P. Kopylova, G. T. Kabannik, A. Kh. Klibus, K. D. Modylevskaya, and S. V. Radzikovskaya.

Analiz tugoplavkikh soyedineniy (Analysis of Refractory Compounds) Moscow, Metallurgizdat, 1962. 256 p. 3250 copies printed.

Ed.: Ye. A. Nikitina; Ed. of Publishing House: O. M. Kamayeva; Tech. Ed.: A. I. Karasev.

PURPOSE: This book is intended as a laboratory manual for personnel in plant laboratories of the machinery, chemical, and aircraft industries and scientific research institutes. It can also be used by chemistry students at universities and schools of higher education.

Card 1/4

COVERAGE: The book contains data from the literature and from laboratory research on the chemical and mechanical properties, crystalline structure, chemical analysis, production, and industrial and other applications of silicon carbide and other refractory compounds. Methods of determining the basic components of refractory compounds (carbon, boron, nitrogen, and silicon) are reviewed and detailed methods for the chemical analysis of all presently known refractory compounds given. The authors are associated with the Institut metallokeramiki i spetsial'nykh splavov, AN SSSR (Institute of Powder Metallurgy and Special Alloys, Academy of Sciences USSR). No personalities are mentioned. There are 327 references: 175 Soviet and the remainder mainly English and German.

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SAMSONOV, G.V.; KOSOLAPOVA, T.Ya.; MAKARENKO, G.N.

Preparation and some physicochemical properties of yttrium carbides. Zhur.neorg.khim. 7 no.5:975-979 My '62. (MIRA 15:7)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
(Yttrium carbides)

SAMSONOV, G.V.; PILIPENKO, A.T., prof., doktor khim. nauk; NAZARCHUK, T.N., kand. khim. nauk; Prinimali uchastiye: POPOVA, O.I., kand. khim. nauk; KOSOLAPOVA, T.Ya.; OBOLONCHIK, V.A.; KOTLYAR, G.Kh., mladshiy nauchnyy sotr.; KUCHAY. L.N.; KOPYLOVA, V.P.; KABANNIK, G.T.; KLIBUS, A.Kh.; MODYLEVSKAYA, K.D.; RADZIKOVSKAYA, S.V.; NIKITINA, Ye.A., red.; KAMAYEVA, O.M., red. izd-va; KARASEV, A.I., tekhn. red.

[Analysis of high-melting compounds] Analiz tugoplavkikh soedinenii. Moskva, Metallurgizdat, 1962. 256 p. (MIRA 15:7)

1. Chlen-korrespondent Akademii nauk USSR (for Samsonov).
(Intermetallic compounds—Analysis)
(Nonmetallic materials—Analysis)

S/079/62/032/009/001/011
I048/I242

AUTHORS: Samsonov, G.V., ~~Kosolapova, T.Ya.~~, and Fedorus, V.B.

TITLE: Preparation of barium carbide

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 9, 1962, 2753-2755

TEXT: The following reactions leading to the formation of BaC_2 were investigated: (1) $BaO + 3C = BaC_2 + CO$ (2) $BaO_2 + 4C = BaC_2 + 2CO$ (3) $BaCO_3 + 3C = BaC_2 + CO$. When a mixture of $BaO + 3C$ was heated to 1000-1500°C no BaC_2 was formed because of the evaporation of BaO. On heating sintered bricks of $BaO_2 + 4C$, a reaction started at 1300° C, yielding a product with 2.22% combined C; the product formed at 1600°C contained 11.79% combined C, but the amount of combined C decreased when the reaction temperature was increased further. The weight losses increased with increasing reaction temperature up to 80-90% at 1800-1900°C. The yield of BaC_2 was 10-15%. Reaction (3), after 4 hours of heating at 1350°C, yielded a product containing 12.2% combined C; the presence of excess C (in the form of soot) had an irregular effect on the course of the reaction. In the presence

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I048/I242

Preparation of barium...

of 5% excess C, a product containing 14% combined C (i.e., with a composition approximately equal to the stoichiometric composition of BaC_2) was formed at 1350°, but the amount of combined C decreased with further increase in the amount of excess C. Both CO and CO_2 were found in the gaseous products of the reaction; this shows that the rate of dissociation of $BaCO_3$ at the experimental temperature used was higher than the rate of the reaction $CO_2 + C \rightleftarrows 2CO$. There are 3 tables.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov Akademii nauk Ukrainskoy SSR (The Institute of Metal Ceramics and Special Alloys, Academy of Sciences of the UkrSSR)

SUBMITTED: September 23, 1961

Card 2/2

SAMSONOV, G.V.; MAKARENKO, G.N.; KOSOLAPOVA, T.Ya.

Scandium carbides and complex scandium-titanium carbides. Dokl. AN SSSR 144 no.5:1062-1065 Je '62. (MIRA 15:6)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR. Predstavleno akademikom A.P.Vinogradovym.
(Carbides) (Scandium compounds) (Titanium compounds)

SAMSONOV, G.V.; KOSOLAPOVA, T.Ya.; FEDORUS, V.B.

Production of barium carbide. Zhur.ob.khim. 32 no.9:2753-2755 S '62. (MIRA 15:9)

1. Institut metallokeramiki i spetial'nykh splavov AN UkrSSR.
(Barium carbide)

L'VOV, S.N.; NEMCHENKO, V.F.; KISLYY, P.S.; VERKHOGLYADOVA, T.S.;
KOSOLAPOVA, T.Ya.

Electric properties of chromium borides, carbides, and nitrides.
Porosh.met. 2 no.4:20-25 Jl-Ag '62. (MIRA 15:8)

1. Khersonskiy gosudarstvennyy pedagogicheskiy institut imeni Krupskoy i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.
(Chromium compounds--Electric properties)
(Ceramic metals--Electric properties)

S/081/62/000/024/014/073
B117/B186

AUTHORS: Yeremenko, V. N.; Kosolapova, T. Ya.

TITLE: Additional information on the reaction of titanium carbide with nickel

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1962, 94, abstract 24B659 (In collection: Vopr. poroshk. metallurgii i prochnosti materialov. no. 7. Kiyev, AN USSR, 1959, 3-6)

TEXT: Based on metallographical studies and the chemical phase analysis of Ni - TiC alloys prepared by powder-metallurgical methods, it was concluded that free carbon is not separated and that the system is quasibinary. [Abstracter's note: Complete translation.]

Card 1/1

KOSOLAPOVA, T.Ya.; SAMSONOV, G.V.

Chemical stability of chromium carbides. Ukr.khim.zhur. 28 no.8:931-933 '62. (MIRA 15:11)

1. Institut metallokeramiki spetsial'nykh splavov AN UkrSSR.

(Chromium carbide)

ACCESSION NR: AT4035158 S/0000/63/000/000/0008/0021

AUTHOR: Samsonov, G. V.; Kosolapova, T. Ya.; Lyutaya, M. D.; Makarenko, G. N.

TITLE: Preparation and physicochemical properties of the carbides and nitrides of the rare-earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'ny*ye elementy* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 8-21

TOPIC TAGS: rare earth, rare earth element, scandium, lanthanum, yttrium, cerium, carbide, nitride

ABSTRACT: After reviewing the literature on the structure and physical properties (density, melting point, electrical resistivity) of the carbides and nitrides of Sc, Y, La and Ce, the authors describe the preparation of ScC, YC, LaC, ScN, CeN and LaN, the oxidation of the carbides, and some results of an X-ray study of their microstructure. The carbides and nitrides were prepared by heating the oxides with C and N, respectively, at temperatures between 800 and 1800C. The nitrides could also be prepared at lower temperatures by heating the oxide with ammonia. Data are given on the effects of variations in temperature, heating rate and concentration of the reagents, as well as on the relationship between the composition and physical properties of the carbides. Thus, YC_2 was found to have the highest

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APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825120020-1"

ACCESSION NR: AT4035158

melting point, electrical resistivity, chemical stability and microhardness, all of which increased with the C/metal ratio. X-ray analysis of the nitrides showed a cubic lattice of the NaCl type with a period of about 4.5-5.5 A. "The X-ray analyses were carried out by O. T. Khorpyakov." Orig. art. has: 12 figures and 6 tables.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: IC NO REF SOV: 016 OTHER: 005

Card 2/2

ACCESSION NR: AP4042211 S/0020/64/157/002/0408/0411

AUTHOR: L'vov, S. N.; Nemchenko, V. F.; Kosolapova, T. Ya.; Samsonov, G. V.

TITLE: Physical properties of titanium carbide in the homogeneity region

SOURCE: AN SSSR. Doklady*, v. 157, no. 2, 1964, 408-411

TOPIC TAGS: titanium carbide, carbon deficient titanium carbide, titanium carbide electrical property, titanium carbide electric conductivity, titanium carbide semiconducting property

ABSTRACT: An investigation has been made in the 20—1200C range of the time dependence of the specific resistivity and the coefficient of thermal emf of titanium carbide with a stoichiometric composition and also of carbon-deficient compositions, $TiC_{0.50}$ (87.3% Ti, 12.47% C_{fix}), $TiC_{0.72}$ (84.3% Ti, 15.3% C_{fix}), $TiC_{0.81}$ (82.4% Ti, 17.1% C_{fix}), and $TiC_{0.988}$ (79.8% Ti, 19.6% C_{fix}, 0.4% free C). The Hall coefficient and magnetic susceptibility have also been measured at room temperature. The specific resistivity at room temperature was found to decrease from 174 to 52.2 ohm·cm as the titanium carbide approached

ACCESSION NR: AP4042211

the stoichiometric composition. The Hall coefficient increased from $-4.0 \cdot 10^4$ to $+6.7 \pm 0.2 \cdot 10^4$ $cm^3 \cdot coul$. The Hall coefficient and thermal emf, which varied from -7.7 ± 0.2 to $+12.5 \pm 0.2$ μv/degC, were both of the same sign and changed analogously with increasing carbon content. The magnetic susceptibility per unit mass, varying from $3.0 \pm 0.1 \cdot 10^{-6}$ to $3.22 \pm 0.36 \cdot 10^{-6}$, remained almost unchanged and practically equal to that of pure titanium, i.e., $3.2 \cdot 10^{-6}$. The charge carrier mobility increased quite sharply from 2.3 to 12.8 $cm^3/v \cdot sec$ as the titanium approached the stoichiometric composition. The negative values of the Hall coefficient and thermal emf indicate a predominantly electron conductivity in the entire homogeneity portion of the carbide studied. The relative contribution of electrons to electric conductivity increased on approaching the stoichiometric composition, with a particularly sharp increase in the region of 46—50 at%C. The increasing electric conductivity with increased carbon content observed can be explained by the higher mobility of conductivity electrons. The experimental data show the metallic nature of the electric conductivity of titanium carbide with stoichiometric and nonstoichiometric compositions in

Card 2/3

ACCESSION NR: AP4042211

the entire temperature range investigated. The data indicate no possibility of the appearance of semiconductor-type conductivity in the titanium carbide investigated. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Institut problem materialovedeniya Akademii nauk UkrSSR (Institute of Problems in the Science of Materials, Academy of Sciences, UkrSSR); Khersonskiy pedagogicheskiy institut imeni N. K. Krupskoy (Kherson Pedagogic Institute)

SUBMITTED: 06Mar64 ATD PRESS: 3073 ENCL: 00

SUB CODE: MM, EM NO REF SOV: 008 OTHER: 003

Card 3/3

L 25630-65 EPF(n)-2/EPR/EWT(m)/EWP(b)/EWP(e)/EWP(t) Ps-4/Pu-4 IJP(c) 36
AT/WH/JD/JG
ACCESSION NR: AP4044546 S/0073/64/030/008/0784/0787 28
B

AUTHOR: Kosolapova, T. Ya.; Makarenko, G. N.

TITLE: The preparation and properties of yttrium, lanthanum, cerium and praseodymium dicarbides

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 8, 1964, 784-787

TOPIC TAGS: yttrium dicarbide, lanthanum dicarbide, cerium dicarbide, praseodymium dicarbide, synthesis, property , density, fusion temperature, electric resistance, thermal e.m.f.

ABSTRACT: The possibility of preparing Sc, Y, La, Ce and Pr dicarbides by reducing the corresponding metal oxides with carbon in vacuum was investigated. No ScC_2 was formed in the Sc-C system; only ScC. The optimum conditions for preparing the Y, La, Ce and Pr dicarbides included heating briquets of stoichiometric mixtures (CeO_2 + 4C, and the rest, Me_2O_3 + 7C) in vacuum at 1800-1900C. Manometric studies and chemical and x-ray analyses showed that lower oxides

L 25630-65
ACCESSION NR: AP4044546

were not formed as intermediate reaction products; they consisted of mixtures of the dicarbides with the higher metal oxides. The density, fusion temperature, electric resistance and thermal e. m. f. of YC_2, LaC_2, CeC_2 and PrC_2 were determined. Atmospheric oxidation of the dicarbides resulted in their partial oxidation and partial reaction with atmospheric moisture. Orig. art. has: 2 tables and 4 figures

ASSOCIATION: Institut metallokeramiki i spetsial'ny*kh splavov AN UkrSSR (Institute of Metalloceramics and Special Alloys, AN UkrSSR)

SUBMITTED: 01Jul63 ENCL: 00 SUB CODE: IC, GC

NR REF SOV: 003 OTHER: 008

Card 2/2

L'VOV, S.N.; NEMCHENKO, V.F.; KOSOLAPOVA, T.Ya., SAMSONOV, G.V.

Physical properties of titanium carbide in the homogeneity region. Dokl. AN SSSR 157 no. 2:408-411 Jl '64. (MIRA 17:7)

1. Institut problem materialovedeniya AN UkrSSR i Khersonskiy pedagogicheskiy institut imeni Krupskoy. Predstavleno akademikom N.N.Semenovym.

L 8144-66 EWT(m)/EWP(j)/EWP(t)/EWP(b) IJP(c) JD/JG/RM

ACC NR: AP5027205 SOURCE CODE: UR/0078/65/010/011/2453/2456

AUTHOR: Kosolapova, T. Ya. 44,55; Kaminskaya, O. V., 44,55; Kovalenko, N. A., 44,55; Pustovoyt, L. T. 44,55

ORG: None 44,55

46 37 B

TITLE: Hydrolysis of dicarbides 27 of the rare earth 27,55 metals

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 11, 1965, 2453-2456

TOPIC TAGS: carbide, yttrium compound, lanthanum compound, cerium compound, praseodymium compound, neodymium compound, gadolinium compound, hydrolysis

ABSTRACT: A study was made of the composition of the gaseous products of the hydrolysis of the dicarbides of yttrium, lanthanum, cerium, praseodymium, neodymium, and gadolinium. Weighed portions of the carbides in quartz reactors, purged with carbon dioxide gas, were treated with water at room temperature. The gaseous products evolved during this process were analyzed chromatographically. The article shows a schematic of the chromatographic apparatus. The composition of the hydrolysis products is shown in tabular and in graphic form. The evolution of acetylene as the principal product is evidence that in rare earth metal dicarbides the bond between the atoms and the

Card 1/2 UDC: 546.65:261:542.938

L 8144-66

ACC NR: AP5027205

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825120020-1"

carbon is considerably weaker than the bonds between the carbon atoms, and that during hydrolysis the metal carbon bonds are broken. Passing from lanthanum to cerium, and then to praseodymium and neodymium, the acetylene content in the hydrolysis products increases; this is connected with the characteristics of the electronic structure of the rare earth metal carbides. The evolution of ethylene and ethane is the result of the catalytic activity of the lower oxides of the rare earth metals. "The authors thank G. V. Samsonov for his valuable advice and help, and G. N. Makarenko for preparation of the rare earth metal carbides by powder metallurgy technology." Orig. art. has: 4 formulas, 3 figures, and 4 tables. 44,55

SUB CODE: GC, IC/ SUBM DATE: 05May64/ ORIG REF: 007/ OTH REF: 005

Card 2/2

L 31874-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) GD/JD/WH
(A)
ACC NR: AT6013561 SOURCE CODE: UR/0000/65/000/000/0237/0242

41
B+1

AUTHOR: L'vov, S. N.; Nemchenko, V. F.; Kosolapova, T. Ya.; Samsonov, G. V.

ORG: Institute of Materials Science Problems AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Effect of carbon on physical properties of titanium carbide in the range of its homogeneity

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Vysokotemperaturnyye neorganicheskiye soyedineniya (High temperature inorganic compounds). Kiev, Naukova dumka, 1965, 237-242

TOPIC TAGS: titanium, carbide, nonferrous metal, titanium compound

ABSTRACT: The effect of carbon content (from 18-50 atm % C) on specific resistance and temperature dependence of thermal electromotive force of titanium carbide was studied in the 20°-1200°C range. The Hall coefficient and magnetic susceptibility were also measured at room temperature. The object of the work was to verify data in the literature. The results of the work are summarized in figs. 1-4. Orig. art. has: 4 figures, 1 table.

Card 1/3

L 31874-66

ACC NR: AT6013561

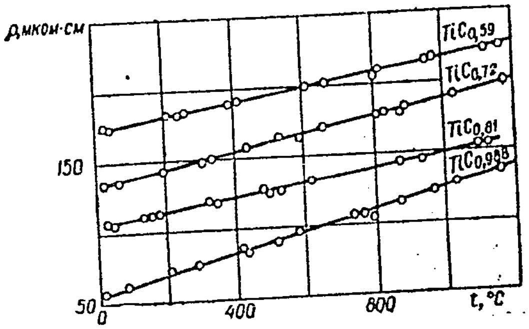


Fig. 1. Temperature dependence of specific resistance of titanium carbide.

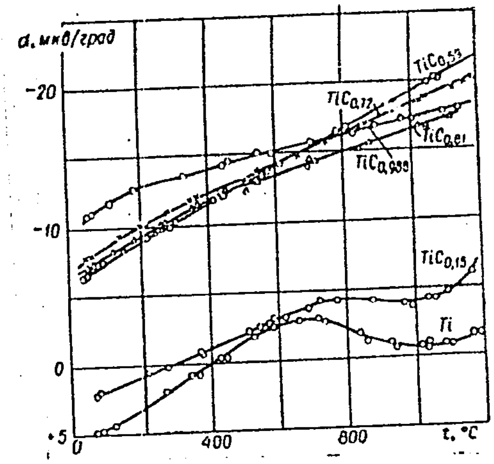
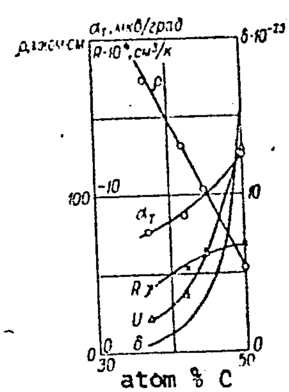


Fig. 2. Temperature dependence of the coefficient of thermal electromotive force of titanium and titanium carbide.

Card 2/3

L 31874-66

ACC NR: AT6013561



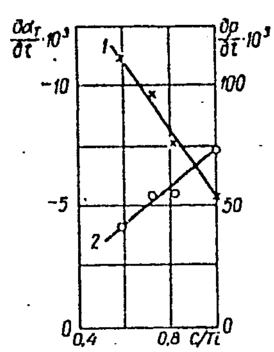


Fig. 3. Dependence of the specific resistance (G), the Hall coefficient (R), the thermal electromotive force (α_T) and the mobility of current carriers (U) and the difference $\delta = n_- u_-^2 - n_+ u_+^2$ on the carbon content in titanium carbide.

Fig. 4. The dependence of the slope of the ρ-temperature, line (1), and the α_T-temperature, line (2), upon carbon content in titanium carbide.

SUB CODE: 07,11/ SUBM DATE: 03Jul65/ ORIG REF: 006/ OTH REF: 003

Card 3/3 PB

L 31879-66 EWT(m)/ETC(f)/EWP(e)/EWP(t)/ETI IJP(c) AT/WH/GD/WW/JW/JD/JG

L 31879-66

ACC NR: AT6013562

energy change for reaction between oxides and carbides upon temperature is shown in figure 1. The difference of the heat of formation of carbides and oxides of Zr, Nb, Mo, Ti, V, and Cr is graphed. Orig. art. has: 2 figures, 5 tables.

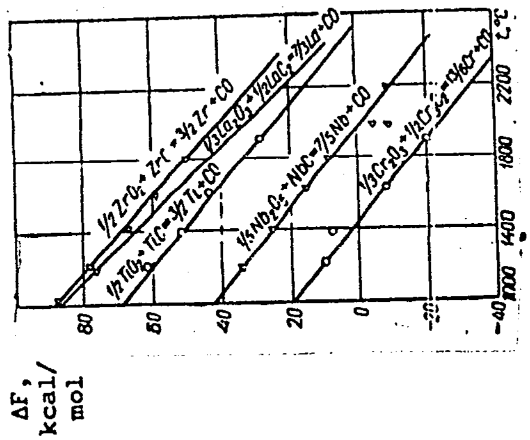


Fig. 1.

SUB CODE: 11, 07/ SUBM DATE: 03Jul65/ ORIG REF: 006

Card 2/2

L 09314-67 EWT(m)/EWP(t)/ETI IJP(c) WH/JD

ACC NR: AP6029828 (A) SOURCE CODE: [illegible]

AUTHOR: Kosolapova, T. Ya; Fedorus, V. B.; Kuz'ma, Yu. B.

ORG: Institute of Materials Science Problems, Academy of Sciences, UkrSSR (Institut problem materialovedeniya Akademii nauk UkrSSR)

TITLE: Reactions of carbides of transition metals with their oxides

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 8, 1966, 1516-1520

TOPIC TAGS: transition metal oxide, carbide

ABSTRACT: The reactions of oxides of titanium, zirconium, hafnium, vanadium, niobium and chromium with their carbides were studied in the range of 1000-2000°C (at 100°C intervals) at 10^{-3} mm Hg by using chemical and x-ray analyses. The formation of intermediate products was studied manometrically in certain reactions. In the TiO_2-TiC and ZrO_2-ZrC systems at 1000-2000°C, the reaction proceeds up to the formation of MC_xO_{1-x} oxycarbides. No reaction is observed in the HfO_2-HfC system in this temperature range. Carbides of group V metals, VC and NbC, react with the corresponding oxides to form the metals via stages of formation of lower oxides and carbides. The formation of chromium by the reaction of Cr_3C_2 with Cr_2O_3 is already observed at 1200°C. A rise in temperature leads to an increase in the yield of pure chromium, reaching 96% in the vicinity of the melting point of chromium. It is concluded that the difference in the nature of the reactions of group IV, V and VI transition metal

UDC: 546.261+541.45

Card 1/2

L 09313-67 EWT(m)/EWP(t)/ETI IJP(c) WH/WW/JD/JG
ACC NR: AP6029829 (A) SOURCE CODE: UR/0363/66/002/008/1521/1523

38
37

AUTHOR: Kosolapova, T. Ya.; Fedorus, V. B.; Kuz'ma, Yu. B.; Kotlyar, Ye. Ye.

ORG: Institute of Materials Science Problems, Academy of Sciences, UkrSSR (Institut problem materialovedeniya Akademii nauk UkrSSR)

TITLE: Nature of the reaction of zirconium dioxide with titanium, niobium and chromium carbides

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 8, 1966, 1521-1523

TOPIC TAGS: zirconium compound, titanium compound, niobium compound, chromium carbide, carbide

ABSTRACT: The reaction of ZrO_2 with TiC, NbC, or Cr_3C_2 was studied at 1000-2000°C at 10^{-2} mm Hg by means of phase chemical and x-ray analyses. The reaction in the ZrO_2-TiC system begins at 1300°C, and at 1900-2000°C results in the formation of a phase identified as a complex oxycarbide of the approximate composition $(Zr_{0.3}Ti_{0.7})(C_{0.56}O_{0.44})$ with lattice constant a = 4.43 Å. The reaction in the ZrO_2-NbC system begins at 1500°C. At about 1900-2000°C, a complex carbide of the type $(Nb_xZr_{1-x})C$ is formed in addition to a complex oxide of the type $(Nb_yZr_{1-y})O_2$. A chemical phase analysis based on the different solubilities of zirconium dioxide and niobium carbide in mixtures of H_2O_2 and citric acid was elaborated. The reaction of ZrO_2 with Cr_3C_2 results at 1300°C in the reduction of ZrO_2 to ZrC and in the formation of the lower

Card 1/2 UDC: 541.45+546.831-31

L 093
ACC NR: AP6029829

chromium carbide Cr_7C_3. It is concluded that the difference in the nature of the reaction of ZrO_2 with carbides of group IV, V and VI metals is due to the difference in the electronic structure of the metal atoms forming the carbides. Authors thank G. V. Samsonov for useful remarks and suggestions during the course of this work. Orig. art. has: 3 tables.

SUB CODE: 07,11/ SUBM DATE: 11Oct65/ ORIG REF: 002

Card 2/2

ACC NR: AP7000013 (A) SOURCE CODE: UR/0080/66/039/011/2395/2400

AUTHOR: Makarenko, G. N.; Kripyakevich, P. I.; Kuz'ma, Yu. B.; Kosolapova, T. Ya.

ORG: Institute of Materials Science Problems, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR); L'vov State University imeni I. Franko (L'vovskiy gosudarstvennyy universitet)

TITLE: Preparation of rare earth sesquicarbides

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 11, 1966, 2395-2400

TOPIC TAGS: lanthanum compound, cerium compound, praseodymium compound, neodymium compound, carbide

ABSTRACT: A study of the possibility and conditions of preparation of lanthanum, cerium, praseodymium and neodymium sesquicarbides via reduction of the metal oxides with carbon in a vacuum and in argon and reaction of the dicarbides with the corresponding oxides showed that the preparation of sesquicarbides is impossible under these conditions because their formation is superseded by the formation of the stabler dicarbides. It is shown that the four sesquicarbides can be formed by reacting dicarbides with the corresponding metals in argon, and also by arc melting of metal fragments with spectroscopically pure graphite. The existence of isostructural oxycarbides of lanthanum and praseodymium of the approximate composition LaCO and PrCO is postulated. Orig. art. has: 9 tables.

Card 1/2 UDC: 546.65.261

ACC NR: AP7000013

SUB CODE: 07/ SUBM DATE: 16Nov64/ ORIG REF: 001/ OTH REF: 003

Card 2/2

KOSOLOBOV, N.I.

Devonian sedimentary series in some parts of the Sayan-Altai fold region. Geol.i geofiz. no.10:106-116 '63. (MIRA 17:1)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya, Novosibirsk.

AKUL'SHINA, Ye.P.; BGATOV, V.I.; KAZARINOV, V.P.; KOSOLOBOV, N.I.;
DAYEV, G.A., vedushchiy red.; FRUMKIN, P.S., tekhn.red.

[Characteristics of the sedimentation in the Devonian and Lower Carboniferous of the South Minusinsk Lowland] Zakonomernosti osadkonakopleniia v devone i nizhnem karbone IUzhno-Minusinskoi kotloviny. Leningrad, Gos.nauchno-tekhn. izd-vo neft.i gorno-toplivnoi lit-ry, Leningr.otd-nie, 1960. 132 p. (Sibirskii nauchno-issledovatel'skii institut geologii, geofiziki i mineral'nogo syr'ia. Trudy, no.12). (MIRA 15:5)
(Minusinsk Basin--Rocks, Sedimentary)

BGATOV, V.I.; BOGOLEPOV, K.V.; KAZARINOV, V.P.; KALUGIN, A.S.; KOSOLOBOV, N.I.; KOSYGIN, Yu.A.; KRASIL'NIKOV, B.N.; KRASNOV, V.I.; KUZNETSOV, Yu.A.; KUZNETSOV, V.A.; LIZALEK, N.A.; ROSTOVTSEV, N.N.; SAKS, V.N.

In memory of Vadim Sergeevich Meleshchenko. Geol.i geofiz. no.2:130-131 '62. (MIRA 15:4)

(Meleshchenko, Vadim Sergeevich, 1917-1961)

AKUL'SHINA, Ye.P.; BGATOV, V.I.; GURARI, F.G.; GUROVA, T.I.; DERBIKOV, I.V.; YEGANOV, E.A.; KAZANSKIY, Yu.P.; KALUGIN, A.S.; KAS'YANOV, M.V.; ~~KOSOLOBOV, N.I.~~; KASYGIN, Yu.A.; MIKUTSKIY, S.P.; SAKS, V.N.; TROFIMUK, A.A.; UMANTSEV, D.D.

Professor Vladimir Panteleimonovich Kazarinov; on his 50th birthday. Geol. i geofiz. no.3:122-123 '62. (MIRA 15:7)
(Kazarinov, Vladimir Panteleimonovich, 1912-)

BGATOV, V.I.; AKUL'SHINA, Ye.P.; BUDNIKOV, V.I.; GERASIMOV, Ye.K.; GUROVA, T.I.; KAZANSKIY, Yu.P.; KAZARINOV, V.P.; KONTOROVICH, A.E.; KOSOLOBOV, N.I.; LIZALEK, N.A.; MATUKHIN, R.G.; MATUKHINA, V.G.; PETRAKOV, V.U.; RODIN, R.S.; SAVITSKIY, V.Ye.; SHISHKIN, B.B.; GRIN, Ye.P., tekhn. red.

[Lithoformational analysis of sedimentary rocks] Litologo-formatsionnyi analiz osadochnykh tolshch. Pod red. V.I. Bgatova i V.P.Kazarinova). (MIRA 16:7)

1. Sibirskiy nauchno-issledovatel'skiy institutu geologii, geofiziki i mineral'nogo syr'ya.
(Rocks, Sedimentary--Analysis)

ZOLOTAREV, V.I.; PEKSHEV, Yu.A.; LENSKIY, B.V.; AVSENEV, Yu.M.; KISVYANTSEV, L.A.; SHVETSOV, N.I.; TELEGIN, Ya.I.; ZYKOV, A.A.; SENIN, V.P.; NETRUSOV, A.A.; GAVRILOV, V.V.; NIKOLAYENKO, Zh.I.; VOLKOV, N.V.; KALASHNIKOV, A.A.; PLAKSIN, S.V.; POPOV, N.N.; KARSHINOV, L.N.; YAKIMOVA, T.A.; SHALASHOV, V.P.; KOSONOGOV, L.A.; PUSENKOV, N.N.; SLADKOVSKIY, M.I., red.; IVANOV, N.I., red.; LEPNIKOVA, Ye., red.; MOSKVINA, R., tekhn.red.

[Economic development in the people's democracies; review for 1958] Razvitie ekonomiki stran narodnoi demokratii; obzor za 1958 g. Pod red. M.I.Sladkovskogo i dr. Moskva, Izd-vo sotsial'-no-ekon.lit-ry, 1959. 358 p. (MIRA 13:7)

1. Moscow. Nauchno-issledovatel'skiy kon"yunkturnyy institut. (Communist countries--Economic conditions)

KOSONOGOV, L.A.

Chemical industries in Rumania in 1958. Biul.tekh.-ekon.inform. no.12:69-70 '59. (MIRA 13:4)
(Rumania--Chemical industries)

RADUSHKEVICH, V.P., prof.; KOSONOGOV, L.F.; BONDARENKO, V.V.; VASHANTSEV, A.A.; SLIVKIN, A.V.; STARYKH, V.S.

Use of new Soviet ganglionic blocking preparations in surgical practice. Khirurgiia 39 no.7:13-19 Jl'63 (MIRA 16:12)

1. Iz kafedry gospital'noy khirurgii (zav. - prof. V.P.Radushkevich) Voronezhskogo meditsinskogo instituta.

KOSONOGOV, L.F.

Acute cardiopulmonary disorders during experimental and clinical pulmonary surgery under potentiated anesthesia. Eksper. khir. i anest. no.1:81-85 '65. (MIRA 18:11)

1. Gospital'naya khirurgicheskaya klinika (zav. - prof. V.P. Radushkevich) Voronezhskogo meditsinskogo instituta.

KOSONOGOV, L.F. (Voronezh, ul. Plekhanovskaya, d.39, kv.42);
BONDARENKO, V.V. (Voronezh)

Case of spontaneous recurarization following administration of relaxants of the nondepolarizing type. Grud. khir. 5 no.5: 97-98 S-O '63. (MIRA 17:8)

KOSONOGOV, L.F.

Endotracheal potentiated anesthesia in major surgical interventions. Khirurgiia 35 no.6:92-97 Je '59. (MIRA 12:8)

1. Iz gospital'noy khirurgicheskoy kliniki (zav.kafedroy - prof.V.P.Radushkevich) Voronezhskogo meditsinskogo instituta.
(ANESTHESIA, ENDOTRACHEAL
potentiated anesth. in major surg. (Rus))

KOSONOGOV, L. F., Cand. Medic. Sci. (diss) "Potential Intratracheal Narcosis for Major Surgical Penetrations and Cardiopulmonary Derangements Following It," Voronezh, 1961, 19 pp. (Ryazan' Med. Inst.) 200 copies (KL Supp 12-61, 285).

RADUSHKEVICH, V.P., prof. (Voronezh, ul.Plekhanovskaya, d.19, kv. 32);
KOSONOGOV, L.F.

Potentiated anesthesia in surgery. Nov. khir. arkh. no.5:37-44 S-O '60. (MIRA 14:12)

1. Kafedra fakul'tetskoy khirurgii (zav. - prof. V.P.Radushkevich) Voronezhskogo meditsinskogo instituta.
(ANESTHESIA)

KOSONOGOV, L.F. (Voronezh, ul. Pravaya Sukonovka, d.12, kv.6); RUDAKOV, S.A.

Fixation of the anesthesia apparatus to the operating table for the centralized feeding of oxygen into the operating room. Grud. khir. 2 no.4:125-126 Jl-Ag '60. (MIRA 15:6)

1. Iz kafedry gospital'noy khirurgii (zav. - prof. V.F. Radushkevich) Voronezhskogo meditsinskogo instituta.

(ANESTHESIOLOGY)

KOSONOGOV, L.F.; VAKHAUTSEV, A.A.; KLAYKIN, G.A.; [illegible], T.T.

Use of ganglerone in clinical surgery. Sov. med. [illegible] no.2:128-130 F '64. (MIRA 17:10)

1. Kafedra gospital'noy khirurgii (zav. - prof. [illegible] Radushkevich) Voronezhskogo meditsinskogo instituta.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

A new exposure process (a "photo electrochemical" process). K. M. Kosonogova. *Compt. rend. acad. sci. U. R. S. S.* [N.S.], 1, 167–8(1936) (in German).—Continuing work on an effect that had been first observed jointly with F. Gluchowskaya in 1932, K. has found that when a Cu electrode coated with a smooth layer of CuI is dipped in a dil. soln. of $Pb(NO_3)_2$ and cathodically polarized, at a polarization of about 0.3 v. lower than the natural electrode potential, the color changes on an exposure to light from whitish to greenish. This light action is intensified by dyes, e. g., rhodamine B, so that, on interposing a negative, a photograph can be obtained in as short a time as 2 min. Detail is satisfactory; and the image remains unchanged for a long time, even in the light. E. R. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Photoelectrochemical phenomena. K. M. Kosmogova. *Mem. Phys. Ukrain.* 6, 59-61(1937).--When a Ag-plated Cu plate carrying a AgI layer is dipped in an electrolytic soln. [e. g., of $Pb(NO_3)_2$] and irradiated, preferably under a cathodic polarization, a photographic impression becomes visible; the irradiated spots are dark and remain so for a year. B. C. P. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

3

Influence of impurities on rectifier photoeffect in Cu_2O. V. R. Lashkarev and K. M. Kosonogova. *Bull. acad. sci. U. R. S. S., Ser. phys.* 5, 478-83 (1941) (English summary).—There exists a layer of electronic cond. between the upper electrode and the barrier layer. Stability of the cells improves with introduction of impurities. Theoret. discussion of the effects of impurities is given.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KOSONOGOVA, K. M.

The Photo-Electromotive Forces in a Homogeneous Semiconductor (Cuprous Oxide), Part 1, B. E. Lashkarev and K. M. Kosonogova, Journal of Experimental and Theoretical Physics (U.S.S.R.), v. 16, no. 9, 1946, p. 786-789. (In Russian).

Shows that adequately annealed specimens of cuprous oxide when illuminated give rise to photoelectromotive forces. Photocells without barrier layers have been obtained in this way, having a sensitivity up to 20 microamperes per lumen, sensitive also to ultra-violet rays. These photo-EMF are produced throughout the thickness of the plate (ca.0.4 mm.), but only to a small extent at the depth of penetration of the light active in the effect (ca.10μ).

PROCESSES AND PROPERTIES INDEX

Cu

Infrared luminescence of cuprous oxide. V. E. Lashkarev and K. M. Kossonogova (Acad. Sci. Ukrainian S.S.R., Kiev). *Compt. rend. acad. sci. U.R.S.S.* **54**, 125-6(1946)(in English).--After excitation by visible light Cu_2O exhibits an intense luminescence in the near infrared region. Films of Cu_2O of 0.15 mm. thickness were prepd., emitting uniform luminescence at a temp. of +11°. The yield averages approx. 10%, and varies from one specimen to another. It was found that heating the samples in vacuo increases the yield while heating in air decreases it sharply. The yield also strongly depends on the temp. of the specimen. M. M. Lutwak

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

Photoelectromotive forces in cuprous oxide. V. E. Lashkarev and K. M. Kosonogova. *Zhur. Eksptl. Teoret. Fiz.* 18, 927-30(1948); cf. *C.A.* 41, 1148*d*.—(1) The sign of the photo-e.m.f. of Cu_2O with Au electrodes is variable. Samples freshly prepd. (by oxidation of Cu at high temp. and quenching in H_2O) and coated with Au by evapn. show often, in light of $\lambda > 0.61\ \mu$, a distinctly pos. (+) effect, which increases on 1-2 hrs.' heating at 330-350° *in vacuo* before coating with Au. Such pos. samples are not subject to aging, but, on the contrary, their photoactivity improves with time. The back side shows also a (+) effect, but 5-30% as large. Heating in air annuls the (+) effect and changes it to a (−) effect owing to accumulation of CuO. Cooling in liquid air increases V^* considerably, up to 100 mv. and more in moderate illumination. Increase of the resistivity through 5 hrs.' annealing at 700° *in vacuo*, followed by etching, resulted first in disappearance of the photo-e.m.f.; it reappeared, however, after 8 months' standing. If the annealing at 700° is followed by 2 hrs. at 350°, and the sample is then etched and coated with Au, it shows a high (+) effect. High-temp. annealing is thus unfavorable to a pos. photo-e.m.f. Coating with Au by cathodic sputtering always results in a (−) effect, independently of the thermal treatment of the Cu_2O. A high V^* is always linked with the formation of a blocking layer of higher resistance than the bulk. That the sign of the photo-e.m.f. is detd. solely by the condition of a very thin surface layer is demonstrated not only by the decisive effect of the method of coating with Au, but also by the effect of the method of etching; thus, short treatment with concd. HNO_3 or NH_4OH reduces the (+) effect, and long treatment with dil. HNO_3 even produces (−). Polishing reduces (+) and often produces (−). Damaging by compression (traumatization) may give rise, temporarily, to (+) on weak, and (−) on strong illumination. Whereas low-temp. treatment (350°) before coating enhances (+), it has the contrary effect when applied after coating with Au. The sign of the effect varies further with the nature of the coating metal, Au, Cu, and Ni, favoring (+), and Ag favoring (−), at least temporarily. (2) The spectral distributions of (+) and (−) samples are practically identical in wave lengths $\lambda > 0.5\ \mu$, the photocurrent i decreasing rapidly with increasing λ. At $\lambda = 0.5\ \mu$, there is a max. in both cases. However, in the range $\lambda < 0.5\ \mu$, i decreases with decreasing λ in (−) samples, but in (+) samples an initial decrease is followed by a rapid growth of i with further decreasing λ, particularly in the ultraviolet region. This effect is attributable to a thin layer of high electronic cond. between the metallic electrode and the blocking layer proper. In terms of the intensity I of the illumination, the (+) effect increases first linearly, then progressively more slowly; deviation from linearity, in samples annealed at 350°, begins at $V^* =$ 0.2 mv. and attains 30% at 1 mv. The curve can be described by $V^* = A \ln (1 + BI)$. Pos. samples annealed at 700° or 900° do not show linearity in any V^* range, and the above relation does not apply. (3) The general formula for the photo-e.m.f. is $V^* = -\rho \int_0^d [i_-(x)/Z(x)]dx$, where ρ = resistivity of the bulk (outside the contact layer), i_- = current due to photoelectrons, Z = ratio of the concn. of the holes to the dark concn. outside the contact layer, d = thickness; the illuminated electrode is at $x = 0$. In the case of a blocking layer, $Z \ll 1$, the

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X

value of i_- in that layer is decisive; with an antiblocking layer, i_- in the bulk is decisive. A blocking layer favors irreversible passage of photoelectrons into the transparent metallic electrode, $i_- > 0$ and V^* is neg. With an antiblocking layer, that passage of electrons can take place only through diffusion of photoelectrons against the elec. field; their concn. is max. at the foot of contact-layer potential hump, and it decreases in depth according to e^{-px}, where $p = 1/\sqrt{\tau\theta_-}$, with τ = life of the photoelectron, θ_- its diffusion coeff. As outside the contact layer $i_- < 0$, the photo-e.m.f. is pos., and the greater, the longer τ and the greater the depth of penetration of the photoelectrons. Judging by the ease with which the (+) effect can be disturbed, it is probable that the conditions of existence of an antiblocking layer in Cu_2O are limited to an extremely thin film, possibly of only at. thickness.

N. Thon

CA 3

The "longitudinal" photoconductivity and photoelectromotive forces in cuprous oxide. V. E. Lashkarev and K. M. Kosonogova. *Zhur. Eksptl. Teoret. Fiz.* 18, 902-9 (1948).—The foregoing theoretical conclusions were tested experimentally on Cu_2O samples heated 2 hrs. *in vacuo* at 350°, showing a pos. (+) photo-e.m.f. effect (cf. 2nd preceding abstr.), the photocond. of which attained 20-30% of the dark cond. with the light penetrating no deeper than to 2-3% of thickness, and showing a distinct rectifying effect, $U^- > U^+$ (cf. preceding abstr.). In contrast to the cuprites investigated by Ioffe and Ioffe (*ibid.* 6, 417(1936)), the Cu_2O samples were free from the "neg. photoeffect" (increase of resistivity with illumination). In illumination with $\lambda = 0.47$ and $0.51\ \mu$, U^+ decreases with increasing applied voltage V, tending to a limit U_1. The same tendency is observed for U^- in illumination with $\lambda = 0.64\ \mu$. In 0.47, 0.51, and 0.64 μ, U_1 amounts to, resp., 21, 34, and 84% of U^+; in other words, steering of the photocond. by the elec. field disappears almost completely in the red. The field-steered component of the photocurrent, $i' = (U^- - U_1)i$, tends to satn., 135 and 145 microamp./sq. cm., resp., in 0.47 and 0.51 μ. In these 2 wave lengths, $U^- > U^+$, and $U^+ < U^*$, at all V; at small V, $U^- > U^*$, and at high V, $U^- < U^*$. The U_1 component is due to transitions giving rise only to photoholes, the distribution of which is difficult to alter owing to the space charge of localized electrons. It cannot but increase in less strongly absorbed wave lengths. The field-directed component of U behaves as if it were detd. by photoelectrons. Its satn. current i' is detd. by the total no. of photoelectrons produced by the light and carried by the field to the other side of the sample. By comparison with known Sb-Cs and Se photocells, the apparent quantum yield of the (+) Cu_2O samples at the satn. current is found to be at least 500 000%. This paradox that the no. of elementary charges transported is many times greater than the no. of photoelectrons produced by the light, is readily explained by the relation $n = \eta N$, the field carrying, along with the electrons, also a substantially greater no. of pos. holes compensating the space charge. For the directed components $U_0 = U - U_1$ and $U_0^* = U^* - U_1$, best agreement between the expts. and the approx. theoretical relations $U_0^- = U_0^*[1 + (a/q)][1/(1 + (a V_1/q^2))]$ and $U_0^+ = U_0^*[1 + (a/q)][(1 - e^{-q/V_1})/[1 + [(a^2 V_1)/(q^2 + V_1^2)]]]$ is obtained with the values of the parameters $q = 30$ and $a = 8$. The true quantum yield is found to be 20-30%, as is normal in rectifying photoelements. From the relation between i' and the resistance R, the satn. current in $\lambda = 0.47$ is calcd. to 148 microamp./sq. cm., as against the exptl. 135. From $r = 1/\rho\theta_-$, with $1/\rho = 31\ \mu$, and θ_- assumed $= 2$ cm.^{2}/sec., the mean life of the photoelectron $\tau = 5 \times 10^{-6}$ sec. Samples of Cu_2O heated

in vacuo at 700°, and then at 350°, showed a behavior completely different from that described above. In the more strongly absorbed $\lambda = 0.47\ \mu$, no longitudinal photocond. was observed at all, and in 0.51 μ, $U = 7.6\%$ required an illumination intensity considerably greater than was necessary to produce $U = 11\%$ with the low-temp. Cu_2O sample. In 0.51 and 0.64 μ, U_1 amounted to, resp., 88 and close to 100% of U^*. This indicates that an annealing at 700° shortens considerably the life of both free and trapped electrons.

N. Thon

KOSONOGOVA, K. M.

USSR/Physics - Infrared Photoelements 11 May 53

"Sensitivity, in the Infrared Region, of Cuprous Oxide Photoelements Manufactured at Low Pressure in a High-Frequency Field," A. I. Andreyevskiy and A. L. Rvachev, Lvov Polytech Inst

DAN SSSR, Vol 89, No 2, pp 245-247

Exptl oxidation of Cu at low pressure in a hf field showed that, depending on pressure, the hf discharge considerably affects the oxidation process, cuprous and cupric oxide being reduced to pure copper simultaneously. The first Cu_2O photoelements with max sensitivity to infrared were produced by V. Ye. Lashkarev and K. M. Kosonogova (Iz Ak Nauk SSSR, Ser Fiz, 4-5 (1941)). Presented by Acad A. N. Terenin. Recd 22 Dec 52.

264T95

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(LEISHMANIASIS VISCERAL in inf & child)

PROTIC, Mihailo, Doc., dr.; KOSORIC, Dragomir, dr.

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p. 478

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KARYAGIN, A.V.; SOLOV'YEV, G.M.; KOSOROTOV, B.V., inzhener-polkovnik, redaktor; SOKOLOVA, G.F., tekhnicheskiy redaktor.

[Construction, maintenance and traffic regulation of automobiles] Ustroistvo, obsluzhivanie i pravila dvizheniia avtomobilei. Izd. 2-e, ispr. Moskva, Voennoe izd-vo Ministerstva oborony Soiuza SSR 1955. 519 p. [Microfilm] (MLRA 8:5)
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GORELIK, Z.M., inzhener; VOYNICH, L.K., inzhener; GILELES, L.Ye., redaktor; KOSOROTOV, B.V., inzhener-podpolkovnik, redaktor; SOLOMONIK, R.L., tekhnicheskiy redaktor

[Catalog of spare parts for MAZ-200 and MAZ-200G trucks, MAZ-200V truck tractor and MAZ-205 dump truck] Katalog zapasnykh chastei gruzovykh avtomobilei MAZ-200 i MAZ-200G, sedel'nogo tiagacha MAZ-200V i avtomobilia-samosvala MAZ-205. Moskva, Voennoe izd-vo Ministerstva oborony SSSR, 1956. 260 p. (MLRA 10:2)

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MASHCHENKO, Anatoliy Fedorovich, kandidat tekhnicheskikh nauk, dotsent; MEDVEDKOV, V.I., kandidat tekhnicheskikh nauk, dotsent; KOSOROTOV, B.V., inzhener-polkovnik, redaktor; SRIBNIS, N.V., tekhnicheskiy redaktor

[Maintenance of automobiles] Tekhnicheskoe obsluzhivanie avtomobilei. Moskva, Voen.izd-vo M-va obor. SSSR, 1957. 217 p. (MIRA 10:9)
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[Manual of automobile traffic regulations] Posobie po pravilam dvizheniia avtotransporta. Izd.2-oe, ispr. Moskva, Voen.izd-vo M-va obor.SSSR, 1957. 224 p. (MIRA 10:9)
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APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825120020-1"

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[Construction, maintenance and traffic regulation of automobiles; a textbook for the training of drivers (drivers of the third class)] Ustroistvo, obsluzhivanie i pravila dvizheniia avtomobilei; uchebnoe posobie dlia podgotovki voditelei avtomobilei (shoferov 3-go klassa). Izd.3-e, perer. Moskva, Voen.izd-vo M-va obor.SSSR, 1957. 487 p. (MIRA 10:12)

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KARYAGIN, Anatoliy Vasil'yevich,; SOLOV'YEV, Georgiy Mikhaylovich,; KOSOROTOV, B.V., inzh.-polkovnik, red.; SOKOLOVA, G.F., tekhn. red.

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FEDOROV, Yuriy Viktorovich; KOSOROTOV, B.V., inzhener-polkovnik, red.;
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[For drivers on carburation] Voditeliu o karbiuratsii. Izd.2., ispr. Moskva, Voen.izd-vo M-va obor.SSSR, 1959. 118 p.
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TARABAR, V.I., inzh.-podpolkovnik; POPKOV, A.N., inzh.-podpolkovnik; KOSOROTOV, B.V., inzh.-polkovnik, red.; KONOVALOVA, Ye.K., tekhn.red.

[Maintenance of ZIL-150, ZIL-164, ZIL-151 and ZIL-157 motortrucks; handbook] Tekhnicheskoe obsluzhivanie avtomobilei ZIL-150, ZIL-164, ZIL-151 i ZIL-157; rukovodstvo. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 119 p. (MIRA 14:2)

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[Manual for the maintenance of the GAZ-51, GAZ-63, GAZ-69, and GAZ-69A motortrucks] Rukovodstvo po tekhnicheskomu obsluzhivaniiu avtomobilei GAZ-51, GAZ-63, GAZ-69 i GAZ-69A. Moskva, Voen. izd-vo M-va obor.SSSR, 1960. 147 p. (MIRA 13:6)

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ROZHKOV, Igor' Vladimirovich; MARINCHENKO, Petr Kharitonovich; YEGOROV, Mikhail Georgiyevich; CHURSHUKOV, Yevgeniy Sergeyevich; KOSOROTOV, B.V., inzh.-polkovnik zapasa, red.; SOKOLOVA, G.F., tekhn. red.

[Protection from corrosion and the cleaning of tanks and containers in fuel storehouses] Zashchita ot korrozii i zachistka rezervuarov i tary na skladakh i bazakh goriuchego. Moskva, Voenizdat, 1963. 117 p. (MIRA 16:6)
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MOROZOV, Petr Alekseyevich; KOSOROTOV, B.V., red.; SOKOLOVA, N.N., tekhn. red.

[Concise manual on the adjustment of tractors] Kratkii spravochnik po regulirovkam traktorov. Moskva, Sel'khozizdat, 1963. 311 p. (MIRA 16:9)

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SLAVIN, Radiy Mikhaylovich; YESIPOVICH, N.M., red.; KOSOROTOV, B.V., red.; TRUKHINA, O.N., tekhn. red.

[Automation on livestock farms] Avtomatizatsiia na zhivotnovodcheskikh fermakh. Moskva, Sel'khozizdat, 1963. 342 p. (MIRA 16:5)

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BARABANOV, V.Ye.; VASILEVSKIY, V.I.; LEVIN, S.M.; KOSOROTOV, B.V., red.; TRUKHINA, O.N., tekhn. red.

[Electric equipment of tractors and motor vehicles] Elektro-oborudovanie traktorov i avtomobilei. Moskva, Sel'khozizdat, 1963. 390 p. (MIRA 16:12)

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GOROZHANKIN, V.I.; KOSOROTOV, B.V., red.

[Brief handbook on the DT-75 tractor] Kratkii spravochnik po traktoru DT-75. Moskva, Izd-vo "Kolos," 1964. 318 p. (MIRA 17:5)

POLYAK, Aleksandr Yakovlevich; SHCUPAK, Ayzik Davydovich;
KOSOROTOV, B.V., red.; SOKOLOVA, N.N., tekhn. red.;
OKOLELOVA, Z.P., tekhn. red.

[Operation of tractor-drawn machinery units at increased speeds] Ekspluatatsiia mashinno-traktornykh agregatov na povyshennykh skorostiakh. Moskva, Sel'khozizdat, 1963. 286 p. (MIRA 17:4)

TEL'NOV, N.F.; KOGOROTOV, B.V., red.

[Repair of oil pumps and filters of tractor and combine engines] Remont maslianykh nasosov i fil'trov traktornykh i kombainovykh dvigatelei. Moskva, Izd-vo "Kolos," 1964. 132 p. (MIRA 17:8)

RYBAKOV, D.Yu.; STEPANOV, V.A.; KOSOROTOV, B.V., red.

[Reconditioning tractor frames] Vosstanovlenie ram traktorov. Moskva, Kolos, 1964. 110 p.
(MIRA 18:5)

SHAROV, M.A.; BURUNOV, V.Ye.; DIVINSKIY, A.A.; KHARCHENKO, N.P.; CHERKASHIN, A.S.; CHULKOV, A.F.; KOSOROTOV, B.V., red.

[DT-75 tractor] Traktor DT-75. Moskva, Kolos, 1965. 258 p. (MIRA 18:7)

DREVAL', N.V., inzh.; LIBTSIS, S.Ye., inzh.; VASERNIS, A.I., inzh.; SHINDNES, R.M., inzh.; KOSOROTOV, B.V., red.

[Construction and operation of the T-16 automotive chassis] Ustroistvo i ekspluatatsiia samokhodnogo shassi T-16. Moskva, Kolos, 1965. 190 p. (MIRA 18:7)

1. Khar'kovskiy traktorosborochnyy zavod (for all except Kosorotov).

DEGTYAREV, V.A.; SISYUKIN, Yu.M.; KOSOROTOV, B.V., red.

[Repair and adjustment of the hydraulic systems of tractors] Remont i regulirovka traktornykh gidrosistem Moskva, Kolos, 1964. 125 p. (MIRA 18:8)

1. Vserossiyskiy nauchno-issledovatel'skiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva (for Degtyarev, Sisyukin).

OGIY, Grigoriy Yefimovich; KOSOROTOV, B.V., red.

[Concise manual on the T-74, and T-75 tractors] Kratkii spravochnik po traktoram T-74, T-75. Moskva, Kolos, 1965. 302 p. (MIRA 18:10)

KITAYTSEV, G.P, inzhener [deceased]; KOSOROTOV, I.V., inzhener; TULLAYEV, N.P., inzhener; FRUMKIN, F.D., inzhener; YAKOVLEV, V.N., inzhener, redaktor; TURKOV, G.A., inzhener, redaktor; TIKHANOV, A.Ya., tekhnicheskiy redaktor

[Assembling machine tools; a concise reference manual] Montazh metallorezhushchego oborudovaniia; kratkoe spravochnoe posobie. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 123 p.

(Machine tools) (MLRA 10:3)

ACC NR: AP6034406 SOURCE CODE: UR/0017/66/000/011/0028/0028

AUTHOR: Kosorotov, L.

ORG: none

TITLE: Dual system field unit [Field telephone]

SOURCE: Voyennyye znaniya, no. 11, 1966, 28

TOPIC TAGS: telephone equipment, telephone system, multichannel telephone system, military communication, field wire communication

ABSTRACT: The TA-57 is a new telephonic device for use in the field by the civil defense. The instrument can be connected to a P-275 or P-274 cable and permits communicate over distances of up to 20 km, or it can be connected to the above ground 3 mm wire enabling the communication to be conducted up to 150 km. It is two system device, which can operate on MB (local battery) or on TsB (central battery). The TA-57 weighs 2.8 kg and its dimensions are 222 x 166 x 76 mm. It is carried in a canvas case which protects the instrument from moisture allowing it to remain operative under any meteorological conditions. The instrument is resistant to radioactive contamination and is equipped with a noise damper, a DEMSh-1 electromagnetic microphone, and a three-stage low frequency amplifier which increases its transmission distance and improves audibility of the message.

SUB CODE: 17/ SUBM DATE: none

Card 1/1

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